

*Please provide the following information, and submit to the NOAA DM Plan Repository.*

**Reference to Master DM Plan (if applicable)**

*As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.*

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

**1. General Description of Data to be Managed****1.1. Name of the Data, data collection Project, or data-producing Program:**

Establishing demographic parameters for loggerhead turtles in the northeastern Pacific Ocean: growth rates, age determination, annual habitat use, and population connectivity

**1.2. Summary description of the data:**

Loggerhead turtles nesting in Japan (i.e. the source rookery for individuals along the U.S. West coast and Pacific Mexico) have recently been declared a Distinct Population Segment (Conant et al. 2008) and listed as Endangered on the U.S. Endangered Species Act (FR 2010). Along the Pacific Coast of Baja, loggerhead turtles have been studied extensively since the late 1990s, resulting in several publications on abundance, local movements, and survivorship (Peckham et al. 2007, 2008, Wingfield et al. 2011, Seminoff et al. In Review). Loggerheads are present along the U.S. west coast and often interact with fisheries operating off of California. In 2003, NMFS issued a time area closure for the Drift Gillnet Fishery to limit loggerhead-fishery interactions within the southern California EEZ. It had long been thought that loggerheads in the Southern California Bight originate from the Mexican foraging population, but recent studies have shown that these turtles come directly from the central North Pacific high seas and recruit directly to California waters (Allen et al. 2012). Pacific Baja and the Southern California Bight are the two primary foraging regions for loggerheads in the eastern North Pacific. MtDNA analysis found significant genetic differences among the 4 loggerhead nesting colonies in Japan and strongly suggests precise natal homing by nesting females (Hatase et al. 2002). Recent technological advances (e.g. longer mtDNA sequences, microsatellites, and SNPs) have improved our ability to detect more fine scale population structuring among nesting sites and within foraging areas (LeRoux et al. 2012, Shamblyn et al. in prep). Although it has long been understood that loggerheads in the North Pacific originate from Japanese nesting sites, it is not clear if any of the different nesting regions in Japan contributes a proportionally greater amount to a specific feeding aggregation (e.g. north Japan vs. south Japan nesting sites to central North/eastern Pacific vs. Mexico foraging sites). To date no genetic studies published on loggerheads foraging in the eastern North Pacific utilizing the longer mtDNA primers or nuclear markers. Further, so far there is zero information on the time at which it takes to access foraging areas of Baja and the SCB, and thus we are unaware of the temporal

susceptibility of loggerheads to

ongoing threats as they move to the eastern North Pacific.

To determine age at recruitment to this habitat, we sampled 217 annual growth layers from a total of 35 dead-stranded loggerheads from Baja, Mexico for stable isotope analysis using a specialized sequential sampling technique we developed. Stable carbon ( $\delta^{13}\text{C}$ ) and stable nitrogen ( $\delta^{15}\text{N}$ ) isotopes were analyzed for each of the 217 samples, and ranged from -21.05 to -14.20 ‰ (1.20 SD) for  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  ranged from 9.86 to 20.55 ‰ (1.93 SD). Using skeletochronology, we paired stable isotope values with estimated age for each sample, focusing specifically on the smallest and youngest turtles in order to identify recruitment into neritic habitats. Loggerheads smaller than 45cm curved carapace length (CCL) are uncommon in Baja, Mexico. Using skeletochronology, estimated CCL values were assigned to each of the 217 samples for further size and age-based analysis. Samples representing turtles larger than 45cm CCL (n = 165) were estimated to be six to 24 years old, and had significantly higher  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values than turtles less than 45cm CCL (n = 52;  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  p < 0.01), which ranged in age from three to six years old. Higher  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values are indicators of settlement to neritic habitats, especially in the eastern Pacific. Age-at-recruitment in to neritic habitats is thus estimated at three to six years, based on stable isotope analysis and is also supported by size frequency analysis.

To pinpoint the residency duration for loggerheads entering this region, we analyzed humerus bones from 1...

### 1.3. Is this a one-time data collection, or an ongoing series of measurements?

Ongoing series of measurements

### 1.4. Actual or planned temporal coverage of the data:

2014 to Present

### 1.5. Actual or planned geographic coverage of the data:

North Pacific Ocean

### 1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)

Document (digital)

### 1.7. Data collection method(s):

(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

Instrument: CM-2 micro sampler for generating bone material, Finnegan MAT Delta Plus mass spectrometer for determining isotope values

Platform: Small boats

Physical Collection / Fishing Gear: Dip nets

### 1.8. If data are from a NOAA Observing System of Record, indicate name of system:

**1.8.1. If data are from another observing system, please specify:****2. Point of Contact for this Data Management Plan (author or maintainer)****2.1. Name:**

Jeffrey A Seminoff

**2.2. Title:**

Metadata Contact

**2.3. Affiliation or facility:**

Southwest Fisheries Science Center

**2.4. E-mail address:**

jeffrey.seminoff@noaa.gov

**2.5. Phone number:**

(858) 546-7152

**3. Responsible Party for Data Management**

*Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.*

**3.1. Name:**

Jeffrey A Seminoff

**3.2. Title:**

Data Steward

**4. Resources**

*Programs must identify resources within their own budget for managing the data they produce.*

**4.1. Have resources for management of these data been identified?**

No

**4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):**

Unknown

**5. Data Lineage and Quality**

*NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.*

**5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible**

*(describe or provide URL of description):*

Lineage Statement:

Data are checked for errors and stored in a secure server.

**5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:**

**5.2. Quality control procedures employed (describe or provide URL of description):**

Data are checked for errors.

## **6. Data Documentation**

*The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.*

**6.1. Does metadata comply with EDMC Data Documentation directive?**

Yes

**6.1.1. If metadata are non-existent or non-compliant, please explain:**

**6.2. Name of organization or facility providing metadata hosting:**

NMFS Office of Science and Technology

**6.2.1. If service is needed for metadata hosting, please indicate:**

**6.3. URL of metadata folder or data catalog, if known:**

<https://inport.nmfs.noaa.gov/inport/item/24175>

**6.4. Process for producing and maintaining metadata**

*(describe or provide URL of description):*

Metadata produced and maintained in accordance with the NMFS Data Documentation Procedural Directive: <https://inport.nmfs.noaa.gov/inport/downloads/data-documentation-procedural-directive.pdf>

## **7. Data Access**

*NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.*

**7.1. Do these data comply with the Data Access directive?**

No

**7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?**

No

**7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:**

None

**7.2. Name of organization of facility providing data access:**

Southwest Fisheries Science Center

**7.2.1. If data hosting service is needed, please indicate:**

**7.2.2. URL of data access service, if known:**

<http://swfsc.noaa.gov/prd-turtles.aspx>

**7.3. Data access methods or services offered:**

Contact the PI

**7.4. Approximate delay between data collection and dissemination:**

1 year

**7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:**

## **8. Data Preservation and Protection**

*The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.*

**8.1. Actual or planned long-term data archive location:**

*(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)*

Other

**8.1.1. If World Data Center or Other, specify:**

SWFSC

**8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:**

**8.2. Data storage facility prior to being sent to an archive facility (if any):**

Southwest Fisheries Science Center - La Jolla, CA

**8.3. Approximate delay between data collection and submission to an archive facility:**

3 weeks

**8.4. How will the data be protected from accidental or malicious modification or**

**deletion prior to receipt by the archive?**

*Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection*

Stored in a secure server.

**9. Additional Line Office or Staff Office Questions**

*Line and Staff Offices may extend this template by inserting additional questions in this section.*